The phase shift between the first harmonic of the tangential component of the induced current and voltage u is obviously due to the delay τ as follows: $\tau = \pi - \theta_e$, where θ_e is the mismatch angle. Therefore,

$$\omega = 1 + 0,5Q_{\ell}^{-1}\mathrm{tg}\theta_e + \frac{9}{256} Y_{0K}^{-2}\beta_1^2 g^2 a^4(\sin 4\theta_e \mathrm{tg}\theta_e + \cos 4\theta_e). \quad (6)$$

Here, the first two terms are well-known from the classical theory of electronic frequency shift [7]. The third term, which establishes a relationship between ω, g, and a, has not, as far as the author knows, been examined in publications dealing with magnetron generators.

The fluctuations themselves of frequency ω about its determinant value $\langle\omega\rangle$ can be found from (6) by representing the amplitude a and conductance g in the usual form for problems of thus type: $a = a_0(1 + \rho)$, $g = g_0(1 + \tilde{g})$, $\langle\rho^2\rangle << 1$, $\langle\tilde{g}^2\rangle << 1$. After linearization in the vicinity of the unperturbed regime for $\nu = \omega - \langle\omega\rangle$, we find

$$\nu = \frac{9}{128} Y_{0K}^{-2}\beta_1^2 g_0^2 a_0^4(\sin 4\theta_e \mathrm{tg}\theta_e + \cos 4\theta_e)(\tilde{g} + 2\rho). \quad (7)$$

It is easy to see that the effects of $\tilde{g}$ and ρ on ν are eliminated provided that $\theta_e = -30°$. In the range of operating conditions, the mismatch angle usually varies from $-10°$ to $-60°$. The θ_e value found here falls into that interval.

It is interesting that, according to Smirnov et al. [6, 10], low-noise operation of magnetrons is achieved by control of the emission parameters of the cathode, which, through the anode current, to a considerable extent determine the angle θ_e. However, judging from the fairly great distance from the carrier – it is 1-100 kHz in the case of Johnson et al. [10] – it cannot be asserted with absolute accuracy that these low-noise conditions hold for slow frequency fluctuations. Experiments with a lower modulation frequency – on the order of 0.1-100 kHz, for example – are required. Magnetrons with a low noise level near the carrier frequency are desirable for Doppler radars; although difficult, therefore, such studies are highly necessary.

LITERATURE CITED

1. V. I. Nikonov, Izv. Vyssh. Uchebn. Zaved., Radiofiz., **5**, No. 2, 270 (1962).
2. M. I. Kuznetsov, Izv. Vyssh. Uchebn. Zaved., Radiofiz., **12**, No. 12, 1873 (1969).
3. V. I. Gomozov and É. G. Lamekhov, Izv. Vyssh. Uchebn. Zaved., Radiofiz., **30**, No. 9, 1138 (1987).
4. S. A. Kornilov, Radiotekh. Élektron., **19**, No. 6, 1230 (1974).
5. A. V. Smirnov and V. G. Usychenko, Radiotekh. Élektron., **33**, No. 4, 883 (1988).
6. A. V. Smirnov, I. V. Sokolov, and V. G. Usychenko, Élektron. Tekh., Ser. 1, Élektron. SVCh, No. 3(339), 3 (1982).
7. S. I. Bychkov, Problems of Theory and Practical Use of Magnetron-type Devices [in Russian], Sovet-skoe Radio, Moscow (1967).
8. V. S. Umanskii, Amplifier Channel of Microwave Pulse Transmission Devices [in Russian], Sovet-skoe Radio, Moscow (1973).
9. L. A. Vainshtein and D. E. Vakman, Frequency Division in the Theory of Oscillations and Waves [in Russian], Nauka, Moscow (1983).
10. Johnson, Smith, and Calder, TIIER, **54**, No. 2, 174 (1974).

ERRATA

G. B. Malykin's article "Variation of preservation-of-polarization-state parameter in fiber-wrapped anisotropic light guides" (Vol. 35, No. 1, pp. 98-100, 1992) contains an author's error: in Fig. 1, on the axis of the abscissas (D, cm), "10^{2}" should read "10^{1}."